

### AM/FM IF SYSTEM IC

The KIA6040P is AM/FM IF system IC designed for portable use. As compared with conventional IC, this IC is greatly improved in external parts counts and electrical characteristics, especially tweet and overload distortion.

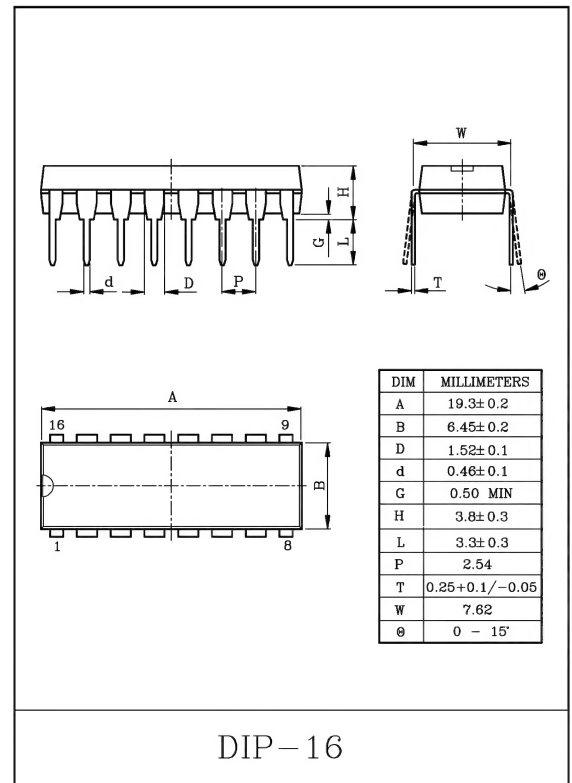
#### FEATURES:

- Low Supply Current, AM:7mA, FM : 10mA(Typ.).
- Few External Parts.
- Excellent Tweet.
- Low Overload Distortion.
- Tuning Indicator LED Driving Capability.  
:  $I_{LAMP}=10mA(Typ.)$
- Built-in AM/FM Mode Switch.
- Common Output for AM/FM.
- Operating Supply Voltage Range :  $V_{CC(opr)}=3\sim 8V(T_a=25^{\circ}C)$ .

#### MAXIMUM RATINGS ( $T_a=25^{\circ}C$ )

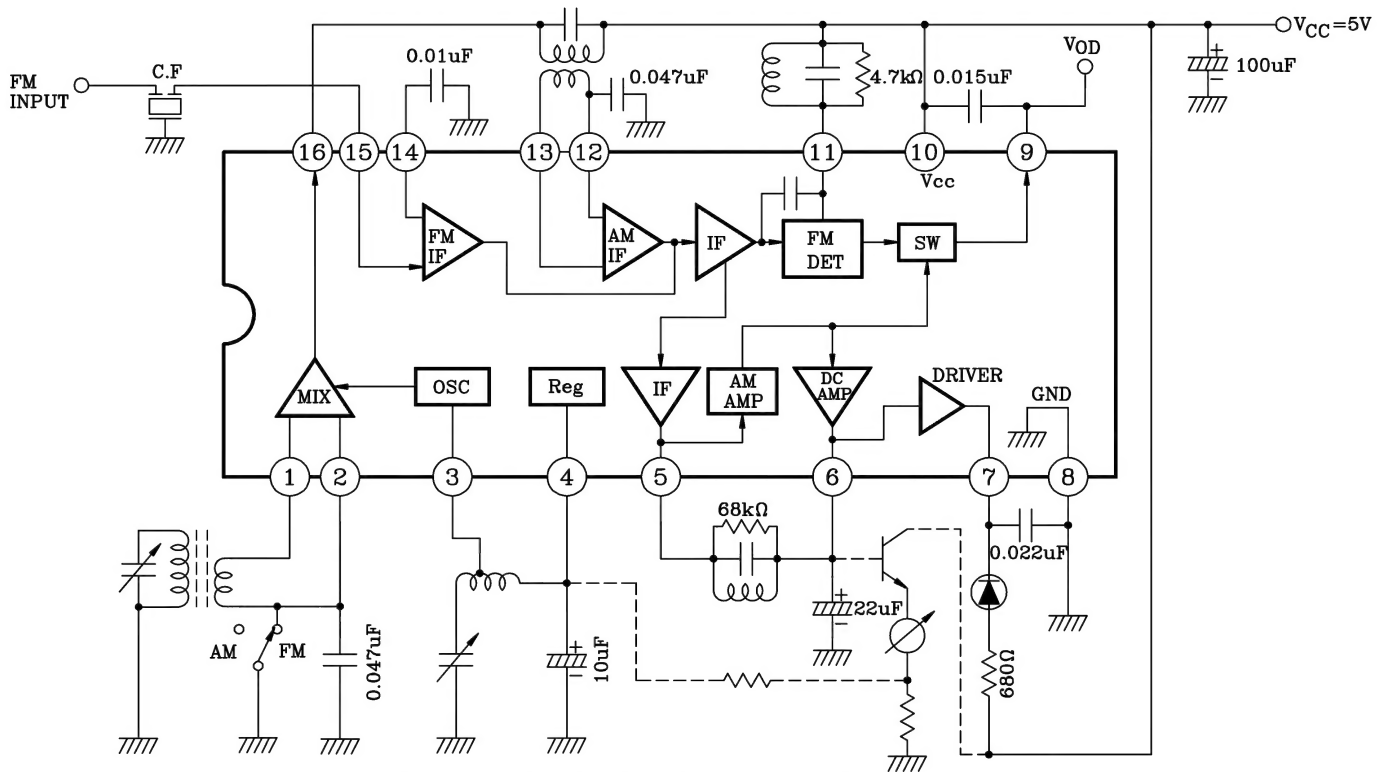
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}$	8	V
Lamp Current	$I_{LAMP}$	10	mA
Power Dissipation (Note)	$P_D$	750	mW
Operating Temperature	$T_{opr}$	$-25\sim 75$	$^{\circ}C$
Storage Temperature	$T_{stg}$	$-55\sim 150$	$^{\circ}C$

Note : Derated above  $T_a=25^{\circ}C$  in the Proportion of  $6mW/^{\circ}C$  for KIA6040P.



# KIA6040P

### BLOCK DIAGRAM



Note : The dot line denotes a tuning meter application.

## ELECTRICAL CHARACTERISTICS

1. DC CHARACTERISTICS ( $V_{CC}=5V$ , Terminal voltage at no signal)

PIN NO.	ITEM	SYMBOL	Typ.		UNIT
			AM	FM	
1	(AM MIX IN)	$V_1$	1.5	0	V
2	(AM MIX BYPASS)	$V_2$	1.5	0	V
3	(AM OSC)	$V_3$	2.3	2.3	V
4	(Reg)	$V_4$	2.3	2.3	V
5	(AM IF OUT)	$V_5$	1.0	0.9	V
6	(Meter OUT)	$V_6$	1.0	0.9	V
7	(LED)	$V_7$	–	–	V
8	(GND)	$V_8$	0	0	V
9	(DET OUT)	$V_{19}$	1.4	1.5	V
10	( $V_{CC}$ )	$V_{10}$	5.0	5.0	V
11	(FM DET)	$V_{11}$	5.0	5.0	V
12	(AM IF BYPASS)	$V_{12}$	1.5	1.5	V
13	(AM IF IN)	$V_{13}$	1.5	1.5	V
14	(FM IF BYPASS)	$V_{14}$	1.5	1.5	V
15	(FM IF IN)	$V_{15}$	1.5	1.5	V
16	(AM MIX OUT)	$V_{16}$	5.0	5.0	V

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## 2. AC CHARACTERISTICS

( Ta=25℃, Vcc=5V, FM: f=10.7kHz,  $\Delta f = \pm 22.5\text{kHz}$  dev., fm=400Hz

AM: f=1MHz, Mod=30%, fm=400Hz )

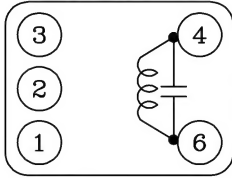
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I <sub>CC</sub> (1)	1	FM V <sub>IN</sub> =0	–	10	15	mA
		I <sub>CC</sub> (2)		AM V <sub>IN</sub> =0	–	7	10	
FM	Input Limiting Voltage	V <sub>IN(lim)</sub>	1	–3dB Limiting	–	40	46	dBμ
	Recovered Output Voltage	V <sub>OD</sub>	1	V <sub>IN</sub> =66dBμ	57	85	114	mV <sub>rms</sub>
	Signal to Noise Ratio	S/N	1	V <sub>IN</sub> =80dBμ	–	65	–	dBμ
	Total Harmonic Distortion	THD	1	V <sub>IN</sub> =80dBμ	–	0.05	–	%
	AM Rejection Ratio	AMR	1	V <sub>IN</sub> =80dBμ	–	38	–	dBμ
	Meter Drive Voltage	V <sub>M</sub>	1	V <sub>IN</sub> =100dBμ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V <sub>L</sub>	1	I <sub>L</sub> =1mA	–	46	52	dB
AM	Gain	G <sub>V</sub>	1	V <sub>IN</sub> =26dBμ	20	30	60	mV <sub>rms</sub>
	Recovered Output Voltage	V <sub>OD</sub>	1	V <sub>IN</sub> =60dBμ	65	95	125	mV <sub>rms</sub>
	Signal to Noise Ratio	S/N	1	V <sub>IN</sub> =60dBμ	–	47	–	dB
	Total Harmonic Distortion	THD	1	V <sub>IN</sub> =60dBμ	–	1.0	–	%
	Meter Drive Voltage	V <sub>M</sub>	1	V <sub>IN</sub> =100dBμ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V <sub>L</sub>	1	I <sub>L</sub> =1mA	–	32	–	dBμ
	Local OSC Stop Voltage	V <sub>stop</sub>	1	R <sub>DUMP</sub> =∞	–	1.5	–	V
Pin ⑨ Output Resistance		R <sub>09</sub>	–	f=1kHz	–	3.0	–	kΩ



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## COIL DATA (TEST CIRCUIT)

### T<sub>1</sub> FM DETECTOR COIL

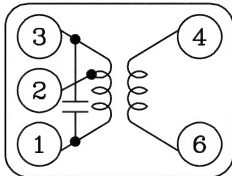


(BOTTOM VIEW)

Co(pF)	f (MHz)	Q <sub>o</sub>	TURNS
4-6		4-6	4-6
47	10.7	150	14

Ⓚ : KSC0902  
 Ⓢ : 44M-933A or  
 SIMILAR  
 WIRE : 0.12mm  $\phi$  UEW

### T<sub>2</sub> AM IFT (MIX OUT)

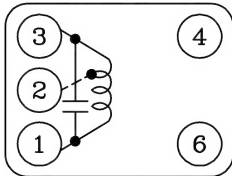


(BOTTOM VIEW)

Co(pF)	f (MHz)	Q <sub>o</sub>	TURNS		
1-3		4-6	1-2	2-3	4-6
180	455	150	90	62	8

Ⓚ : KS M308  
 Ⓢ : 48T-423 or SIMILAR  
 WIRE : 0.07mm  $\phi$  UEW

### T<sub>3</sub> AM IFT (DET)

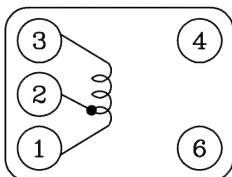


(BOTTOM VIEW)

Co(pF)	f (MHz)	Q <sub>o</sub>	TURNS
1-3		1-3	1-
180	455	110	152

Ⓚ : KSAD106  
 Ⓢ : 44M-935C or  
 SIMILAR  
 WIRE : 0.07mm  $\phi$  UEW

### T<sub>4</sub> MW OSC



(BOTTOM VIEW)

f (kHz)	L( $\mu$ H)	Q <sub>o</sub>	TURNS	
	1-3	1-3	1-2	2-3
796	288	120	13	75

Ⓚ : KSA0408  
 Ⓢ : 0137-262 or SIMILAR  
 WIRE : 0.08mm  $\phi$  UEW

NOTE : Ⓚ : KWANG SUNG ELECTRIC CO., LTD.  
 (Tel : 02)716-0034  
 Ⓢ : SUMIDA ELECTRIC CO., LTD.

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## APPLICATION CIRCUIT

